ATTACHMENT A

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Attachment A
In Patent Application Serial No. 10/602,186
Filed June 23, 2003

DECLARATION OF ROBERT S. SPOSILI

I, Robert S. Sposili, Dr. of Engineering Science, hereby declare as follows:

1. My residence address is 3505 S Street Vancouver, WA 98663-2547.

2. Since August 2002 I have been employed by Sharp Laboratories of America, Inc., 5700 N.W. Pacific Rim Boulevard, Camas, Washington 98607. My title is Senior Research Engineer. My responsibilities include conducting research and development in the field of flat panel displays, including advanced processes and materials to improve display devices and device fabrication methods.

3. My educational background includes both a Dr. of Engineering Science 2001, and M.S. in Metallurgy & Materials Science 1994, degrees from Columbia University, and a B.E. in Chemical Engineering 1988 from The Cooper Union for the Advancement of Science and Art.

4. My employment history includes Technical Advisor, SLS Technology Transfer Team for Columbia University in the City of New York 2001-2002.

5. I worked as a Research Staff Member at Anvik Corporation 2000-2001.

6. Prior to that I was an Assistant Engineer/Engineer in the Materials Engineering Department, Non-Metallics and Finishes Group for Northtrop Grumman Corporation 1989-1994.

7. Accompanying this Declaration as Attachment B is a list of my publications, conference presentations, and patents.

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8. Prior to making this Declaration I have read the specification, claims, and drawings of U.S. Patent Application Serial No.10/602,186, filed June 23, 2003, for "System and Method for Forming Single-Crystal Domains Using Crystal Seeds", invented by Voutsas et al.

9. I have also reviewed the Office Action dated December 9, 2004 as it relates to the Examiner's rejections of the claims under 35 USC § 103(a). In those rejections the Examiner contends that claims 1-6 and 10 are unpatentable over Yamazaki et al. ("Yamazaki"; JP 1995-125908). The rejections are based upon the assertion that those skilled in the art could reasonable make inferences concerning the claimed invention from the teachings of the cited art.

10. The method described in applicant's specification, and defined in applicant's claims with different degrees of specificity, focuses on interrelated steps involved in a semiconductor fabrication process that forms a single-crystal domain as a result of using a nanowire of self assembled monolayer (SAM) as a single-crystal seed. These interrelated steps, in my view, stand collectively as a significant and non-obvious improvement over the known prior art.

11. The known prior art, as represented by the Yamazaki reference, quite distinctly guides one's attention along a very different path from that set forth in applicant's claims to invention. Nothing in the prior art, including my close awareness regarding the relevant skill in the art, deflects this focused thinking into imagining the possibilities of forming a single-crystal film domain as a consequence of using a nanowire or SAM single-crystal seed.

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12. In claim 1, the applicant recites a method for forming a semiconductor film single-crystal domain. These steps include: (1) forming a substrate; (2) forming a single-crystal seed over the substrate, using a SAM or nanowire as the seed; (3) forming an amorphous film over the seed; (4) annealing; and, (5) forming a single-crystal domain responsive to the seed. These steps solve one of the key drawbacks associated with the fabrication of thin-film transistors (TFTs). Conventionally, TFT processes have been developed to permit the fabrication of transistors overlying temperature-sensitive substrates such as glass, which can be damaged at temperatures of greater than 600 degrees C. Advantageously, these processes support the fabrication of liquid crystal displays (LCDs). However, these low-temperature processes are associated with amorphous or polycrystalline transistor film structures, which limit the electrical performance of the resultant TFTs. The applicant's invention permits high-performance (single-crystal) TFTs to be fabricated at low process temperatures.

13. Yamazaki appears to describe a method for forming a TFT, with a single-crystal active layer, overlying a glass substrate. There may be details in the main body of the application, not mentioned in the Yamazaki's Abstract, which would support the claimed process. However, it is clear that Yamazaki only describes a process that forms a seed crystal as a result performing an initial laser-annealing step. Further, Yamazaki's process requires the deposition of two separate a-Si layers. A first a-Si layer is annealed to form a seed crystal. After patterning, a second a-Si layer is deposited over the seed crystal, and another annealing process is performed. Yamazaki does not consider that the first a-Si layer, and the first annealing process, can be eliminated by using either a SAM or a nanowire as the seed crystal.

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14. Even when coupled to the knowledge of those skilled in the art at the time of the invention, there is no suggestion to use a nanowire or SAM as a seed crystal in a process of forming single-crystal domains in a semiconductor film. As I mentioned above, Yamazaki does not suggest the use of a nanowire or SAM seed crystal. Neither am I aware of any presentations, papers, or discussions by artisans in the field mentioning the use of nanowires or SAMs as single-crystal seeds that might be useful in annealing processes.

15. For these above reasons, I come to the conclusion that one skilled in the art would not be enabled or moved by the cited and applied prior art to generate applicant's claimed invention.

16. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United State Code and that such willful, false statements may jeopardize the validity of the application on any patent issuing thereon.

Date: 2/14/05 Signed: Robert S. Sposili

Robert S. Sposili

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